

THE REINSTATEMENT OF THE NAME
Australium tentoriiformis (Jonas) FOR
Bellastraea sirius OF AUTHORS
(MOLLUSCA: GASTROPODA: TURBINIDAE)

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Plates 11-12

SUMMARY

The type specimen of *Turbo (Stella) sirius* Gould, 1849, is a juvenile specimen of *Australium rhodostomus* (Lamarck, 1822), a species common in N.E. Australia. An analysis of the original description of *Trochus tentoriiformis* Jonas, 1845, shows that this species name can be applied to the common S.E. Australian *Australium* previously known as *sirius*.

DISCUSSION

The common S.E. Australian species of *Australium* was known as *tentoriiformis* (Jonas, 1845) until Hedley (1923) introduced the name *Astraea sirius* (Gould) stating that *A. tentoriiformis* was restricted to S.W. Australia. This interpretation has been accepted by all subsequent authors. Iredale (1924) argued that *Trochus urvillei* Philippi, 1852 (Pl. 11, fig. 11) and *Trochus georgianus* (Quoy ms) Fischer, 1875 (Pl. 11, fig. 9-10), were both based on Quoy and Gaimard's (1834) figure of a shell those authors identified as "*fimbriatus* var." (Pl. 11, fig. 11). He concluded that not only were these names synonyms of *tentoriiformis*, but that the name *georgianus* indicated the locality at which the material was collected (i.e. King George Sound, S.W.A.). An examination of the figures and of photographs of some of the original material indicates that *urvillei* and *georgianus* are not founded on the same specimen, although they possibly came from the same lot of material, and that they are the S.E. Australian species. This conclusion is reinforced by the fact that there is only one moderately large species of *Australium*, *A. squamifera* Kock, 1844 (= *Trochus fimbriatus* Lamarck, 1822, non Borson, 1821) in the vicinity of King George Sound, a species quite different in appearance from the figures of *georgianus* and *urvillei*. The 3 specimens that make up what is assumed to be Quoy and Gaimard's original material on which their manuscript name *georgianus* was based, are housed in the Muséum National d'Histoire Naturelle, Paris and photographs of this material are reproduced on Plate 11, fig. 1-8.

An examination of the holotype of *Turbo (Stella) sirius* Gould, 1849, (Pl. 12, fig. 7-9) shows it to be a juvenile specimen of *Australium rhodostomus* (Lamarck, 1822) (Pl. 12, fig. 1-3), juvenile *sirius* auct. being readily separable (Pl. 12, fig. 4-6).

The basis for Hedley's (1923) introduction of the name *sirius* for *tentoriiformis* is two fold. Although he does not give specific reasons he considers *tentoriiformis* to be from S.W. Australia because most of "the Australian gastropods handled by Jonas . . . were of south-west

origin". He also states that the base is different but does not say how, or where he obtained his evidence. Hedley (1913) indicated that a specimen he examined while in the British Museum (Natural History) labelled "*sirius* Gould, N. Holland, M.C. (=Museum Cuming)" was a juvenile example of *A. tentoriiformis*. There is no evidence to suggest that Hedley or any other Australian malacologist has examined the holotype of *sirius* which is in the National Museum of Natural History, Washington, and the misidentification in the British Museum is presumably the basis of his misinterpretation.

With the name *sirius* no longer available for the S.E. Australian *Astraliium*, a search was made for possible replacement names. After re-examination of the original description of *Trochus tentoriiformis*, which was described from unknown locality, it was apparent that this name could be applied to the S.E. Australian *Astraliium*. The description was compared with the other species of *Astraliium* which were possible contenders for the name, *Trochus squamifera* Koch, 1844, *Bellastraea kesteveni* Iredale, 1924, and *Astraea tentorium* Thiele, 1930. The following points in the description assisted in determining the real identity of *tentoriiformis* (for the purpose of this discussion *sirius* auct. is written "*sirius*"):—

(1) Although the original description states that the shell is "axially folded" it does not mention spiral sculpture on the dorsal surface of the shell. Such spiral ornament is conspicuous in *tentorium*, *squamifera* and *kesteveni* and would probably have been noted in the diagnosis which is rather detailed. *A. "sirius"* has very inconspicuous oblique grooves but the surface otherwise looks smooth except for the axial folds which vary considerably in strength between specimens. All four species show some degree of axial folding or ribbing.

(2) The basal callus is described as being white but the callus is nearly always uniformly violet in *tentorium* and it is distinctly indented in *squamifera*, a feature that would probably have been noted in the description. It is sometimes edged with purple or pink in "*sirius*", but this is not always the case and in dead shells it rapidly bleaches to white.

(3) The basal sculpture is noted as being finely scaly but *squamifera* and *tentorium* both have coarsely-scaled bases whereas in *kesteveni* and "*sirius*" the scaly sculpture is relatively fine on the base.

(4) The colour is given as "brick" coloured and whereas the dorsal coloration of "*sirius*" is often orange-yellow, the other species are generally whitish, although *squamifera* does sometimes have axial reddish-brown markings.

(5) The expanded description following the latin diagnosis notes that the "lower part of the body whorl is somewhat dilated and forms by its thinner edge an acute periphery around the base" (translation).

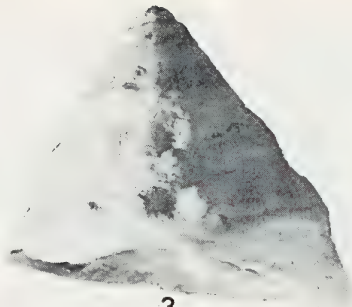
PLATE 11.

Astraliium tentoriiformis (Jonas).

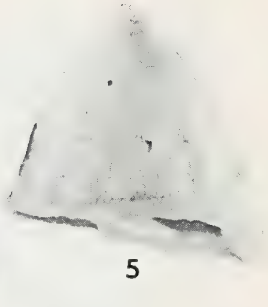
- 1-8. ♂ specimens probably from Quoy and Gaimard's original material labelled "*Trochus georgianus* Nob." in the handwriting of L.-C. Kiener.
 9-10. *Trochus georgianus* Fischer, 1875. Copy of Fischer, 1875, pl. 31, fig. 2.
 11. *Trochus fimbriatus* var. Quoy and Gaimard, 1834. Copy of Quoy and Gaimard, 1834, pl. 61, fig. 9.
 12. *Calcar tentoriiforme* (Jonas). Copy of Fischer, 1875, pl. 79, fig. 2.



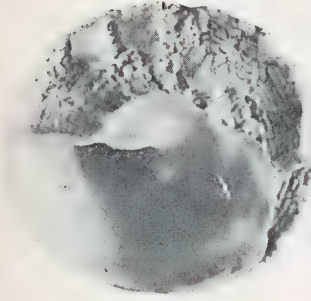
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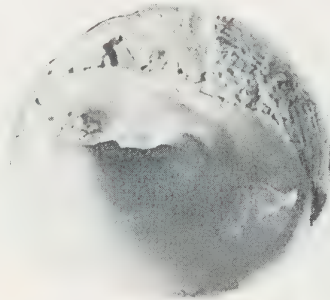
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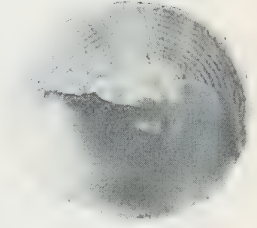
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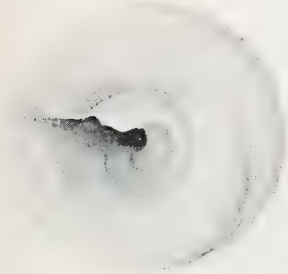
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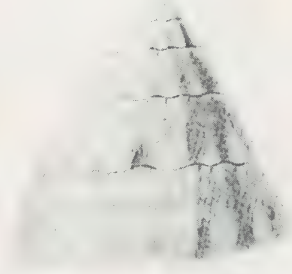
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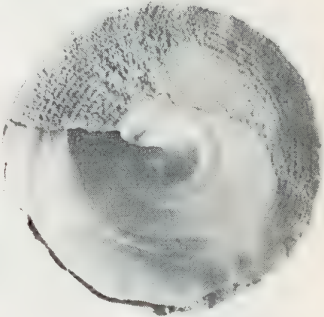
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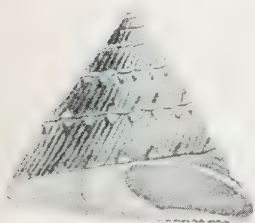
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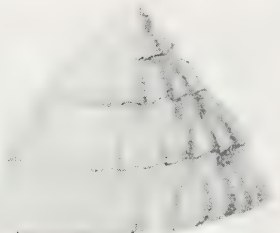
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12



8

Such an expansion at the periphery, whereas not entirely typical of "sirius", is found to some degree in a reasonable proportion of individuals (Pl. 11, fig. 8). A peripheral keel is a typical feature of *squamifera*, *kesteveni* and *tentorium*.

(6) The number of whorls is given as 8. The teleoconch of none of the species has this number of whorls but "sirius" has the greater number (6-7) whereas the other species have at least one whorl less, with the exception of *tentorium*. Possibly the whorl count of 8 in the type specimen included an estimate of the number of whorls of the protoconch.

(7) The base is described as being slightly concave and this character is typical of "sirius" but not the other species, both *kesteveni* and *tentorium* having an almost flat base. The other points mentioned in the description are not specific enough to recognise any characters that might relate to one of the 4 species under discussion.

In summary the bulk of the original description shows that it best agrees with *sirius* auct. and there is nothing in the description which would exclude that species. There is, in addition, no other described species of *Astralium* that would fit the description of *tentoriiformis* as closely as *sirius* auct. The close agreement of *sirius* auct. with the original description of *tentoriiformis* together with its long association with that name prior to 1923, necessitates the adoption of Jonas' name. A brief synonymy is set out below.

Astralium tentoriiformis (Jonas, 1845)

- Trochus tentoriiformis* Jonas, 1845: 66; Philippi, 1852: 116, pl. 20, fig. 1; Reeve, 1851: pl. 8, fig. 43.
Turbo fimbriatus var. Quoy and Gaimard, 1834: 230, pl. 61, fig. 9.
Trochus urvillei Philippi, 1852: 215, pl. 32, fig. 4 (based on Quoy and Gaimard's fig. 9); Reeve, 1861: pl. 9, fig. 46.
Turbo urvillei. Sowerby, 1886: 226, pl. 502, fig. 118.
Calcar tentoriiforme. Fischer, 1875: 41, pl. 31, fig. 2, pl. 79, fig. 2.
Trochus georgianus ("Quoy ms") Fischer, 1875: 41, pl. 31, fig. 2 (in synonymy of *C. tentoriiforme*).
Turbo (Uvanilla) tentoriiformis. Watson, 1886: 131.
Uvanilla tentoriiformis. Angas, 1867: 214.
Astralium tentoriiforme (sic.). Henn and Brazier, 1894: 176.
Astralium (Uvanilla) tentoriiforme (sic.). Kesteven, 1902: 3, text figs 2, 4, 5.
Astraea sirius. Hedley, 1923: 308, pl. 30, fig. 1 (non Gould, 1849).
Bellastraea sirius. Iredale, 1924: 232; Iredale, 1929: 273; Macpherson and Gabriel, 1932: 81 (non Gould, 1849).

I have been unable to locate the whereabouts of the holotype of *tentoriiformis*, and it may be lost as is apparently the case with most of the species described by Jonas. Jonas states that the type is exhibited in the "museo hon. Gruner". The dimensions he cites are: Height $13\frac{1}{8}$ lin. (= 28.0 mm), diam. of base $18\frac{1}{4}$ lin. (= 38.5 mm).

The figure given by Fischer (1875: pl. 79, fig. 2) and reproduced here (Pl. 11, fig. 12) is identified as *tentoriiformis* and is part of Quoy and Gaimard's material, being included in the lot under their manuscript name *georgianus* (Pl. 1, fig. 7-8). This specimen is a shell with strongly concave whorls, a feature of the shell described by Jonas.

The range of this species is from central Queensland (Green Island, near Mackay, C. 72719) to "eastern Victoria" (Macpherson and Gabriel, 1962). It is an abundant species throughout New South Wales in the lower littoral and shallow sublittoral on rocky shores. It is sympatric

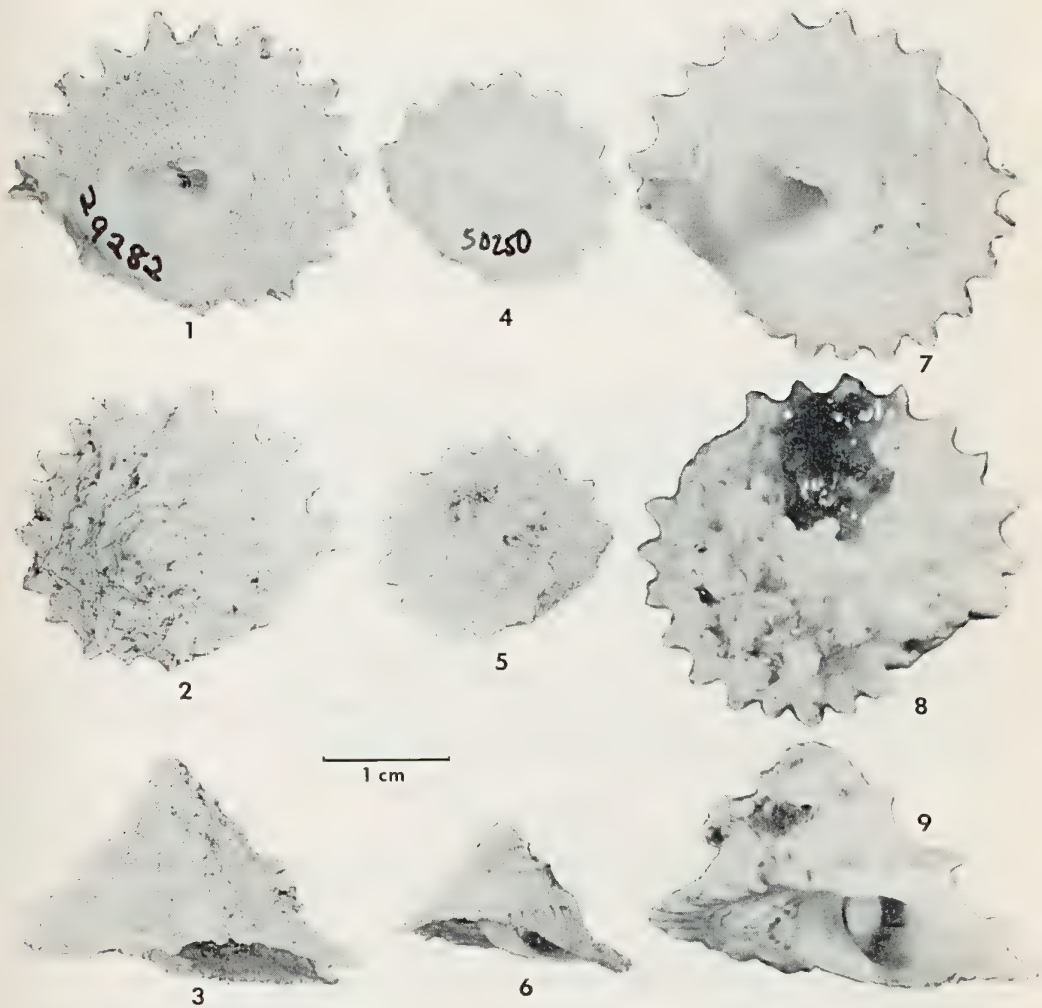


PLATE 12.

Astralium rhodostomus (Lamarck).

1-3. Juvenile specimen, Murray Island, Torres Strait, Queensland. Height 20.9 mm, width 25.7 mm (Australian Museum cat. no. C. 29282).

7-9. Holotype of *Turbo (Stella) sirius* Gould, 1849. Height 9.16 mm, width 13.42 mm (U.S. National Museum cat. no. 56C3).

Astralium tentoriiformis (Jonas).

4-6. Juvenile specimen, Shell Harbour, New South Wales. Height 11.55 mm, width 18.20 mm (Australian Museum cat. no. C. 50250).

over much of the range with *Astralium kesteveni* which, however, tends to be relatively more abundant in the sublittoral than *A. tentoriiformis* and is uncommon or rare in the lower littoral.

Cotton (1959) records *Bellastraea tentoriiformis* (sic) from Point Sinclair, South Australia and Albany, S Western Australia. Examination of the material in the South Australian Museum shows that the South Australian specimens are *A. tentorium* (Thiele, 1930) and obviously

wrongly localised, this view being reinforced by the fact that similar specimens in the same collection are said to be from Sydney. The specimens reported from Albany could not be located but are presumably also wrongly localised. Cotton's record from Rottneest Island refers to *tentorium*, and his specimen from Bunbury is *A. squamifera* (Mrs. S. Slack-Smith pers. comm.).

Astraliium tentorium (Thiele, 1930) extends at least from Point Peron at the southern end of Cockburn Sound north to the seaward side of the islands off Shark Bay, Bernier Island being the northernmost. There is an operculum of this species in the Western Australian Museum said to be from the Cape Leeuwin - Cape Naturaliste area but this record needs confirmation.

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